

Application Number : 10/646,309  
Applicant : Gregory M. Wright  
Filed : 22 August 2003  
T.C./A.U. : 2191  
Examiner : Qing, Chen

Confirmation Number: 9198

Docket Number : SUN-P9042  
Customer No. : 57,960

## **PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Sir:

Applicant respectfully requests a pre-appeal brief conference to review the matters identified below. More specifically, Applicant requests a review of the rejections of the above-referenced application under 35 U.S.C § 103(a) as being unpatentable over Kwong et al. (U.S. patent no. 6,289,506, hereinafter “Kwong”) in view of Ghosh (U.S. patent no. 6,412,109).

### **I. STATUS OF APPLICATION**

In the Official Action mailed on **11 November 2009**, Examiner reviewed claims 1-2, 4-11, 13-18, and 28-35. Examiner rejected claims 1-2, 4-7, 10-11, 13-16 and 28-35 under 35 U.S.C. § 103(a) as being unpatentable over Kwong in view of Ghosh. Examiner rejected claims 8 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Kwong and Ghosh in view of Kilis (U.S. patent no. 5,491,821). Examiner rejected claims 9, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Kwong and Ghosh in view of Evans et al. (U.S. patent no. 5,805,899, hereinafter “Evans”).

### **II. REMARKS AND ARGUMENTS**

Applicant respectfully disagrees with the rejection of independent claims 1, 10, 28, and 32 under 35 U.S.C. § 103(a) as being unpatentable over Kwong in view of Ghosh. The rejection of independent claims 1, 10, 28, and 32 under 35 U.S.C. § 103(a) is improper because Examiner has not made a proper prima facie case for a rejection under 35 U.S.C § 103, as described in the following sections.

THE GAP BETWEEN THE PRIOR ART AND THE CLAIMED  
INVENTION IS SO GREAT AS TO RENDER THE CLAIMS  
NONOBVIOUS TO ONE REASONABLY SKILLED IN THE ART

When establishing a prima facie case when rejecting claims under 35 U.S.C. § 103, Examiner's cited prior art must cover the claimed subject matter.<sup>1</sup> Where the prior art does not cover the claimed subject matter, Examiner is required to explain the differences:

The prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, **Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art;** and

The gap between the prior art and the claimed invention may not be so great as to render the claim nonobvious to one reasonably skilled in the art.<sup>2</sup>

Applicant respectfully notes that Examiner has failed to establish prima facie obviousness because Examiner has failed to explain fundamental differences between the cited Kwong art and independent claims 1, 10, 28, and 32 in the instant application. Specifically, Examiner has failed to explain how Kwong's disclosure of de-compiling native code into "bytecodes" renders obvious the present invention's de-compiling native code into an "intermediate representation" that includes additional information to reduce the number of indirect calls and indirect references associated with the calls.

Kwong discloses de-compiling from precompiled native code back to bytecode format.<sup>3</sup> As described by Ghosh (and generally known in the art), bytecode is a machine instruction set:

The bytecodes executed by the JVM are essentially a machine instruction set, and as will be appreciated by those of ordinary skill

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1 see MPEP § 2141(II)(A)

2 see *id.* § 2141(III)

3 see Kwong, col. 8, line 38-40

in the art, are similar to the assembly language of a computing machine.<sup>4</sup>

In other words, Kwong discloses translating from native code, i.e., a machine-specific instruction set, to bytecode, i.e., a machine-independent instruction set. However, Kwong nowhere discloses obtaining from the native code additional information to reduce the number of indirect calls and indirect references associated with the calls. Instead, Kwong only discloses translating from one instruction set to another.

In contrast, the claimed embodiments generate an intermediate representation for the application, and also generate an intermediate representation for a selected native code method. Then, the two intermediate representations are integrated to form a single integrated intermediate representation, which is then used to optimize calls to and from an application that runs on a virtual machine to the native code method. In the claimed embodiments, the integrated intermediate representation includes a set of instruction code which is not in final executable form. The intermediate representation also includes **additional information** to reduce the number of indirect calls and indirect references associated with the calls. In other words, as described in the instant application, and as is generally known in the art, the intermediate representation can be used for computational operations within a compiler.<sup>5</sup>

Applicant respectfully submits that Examiner has failed to establish prima facie obviousness because Examiner has failed to explain fundamental differences between the cited Kwong art and independent claims 1, 10, 28, and 32 in the instant application. Hence, the rejection of the independent claims under 35 U.S.C. § 103(a) using Kwong in view of Ghosh is improper. Applicant therefore respectfully requests the withdrawal of the rejection of these claims under 35 U.S.C. § 103(a).

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<sup>4</sup> see Ghosh, col. 1, lines 36-39

<sup>5</sup> see instant application, par. [0028]; also, **Applicant's remarks filed on 18 February 2009 and 22 July 2009**

THE PROPOSED MODIFICATION OR COMBINATION OF THE PRIOR  
ART WOULD CHANGE THE PRINCIPLE OF OPERATION OF THE  
PRIOR ART INVENTION BEING MODIFIED

When rejecting claims under 35 U.S.C. § 103, Examiner must not change the principle of operation of a reference:

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.<sup>6</sup>

Applicant respectfully notes that Examiner has failed to establish *prima facie* obviousness because Examiner has attributed principles of operation to portions of the Kwong prior art that are nowhere disclosed in Kwong and that would change the principle of operation of Kwong. Specifically, Examiner's proposed combination of the Kwong and Ghosh systems would change the principle of operation of Kwong.

As discussed above, Kwong is expressly limited to translating from one instruction set (native code) to another (bytecode). On the other hand, Ghosh discloses using an intermediate representation that includes bytecode, as well as additional information:

The IR provides information about two essential components of the program: the control flow graph (CFG) and the data flow graph (DFG).<sup>7</sup>

**The CFG breaks the code into blocks of bytecode**, termed basic blocks, that are always performed as an uninterrupted group of instructions, and establishes the connections that link the basic blocks together. In so doing, the CFG represents different variations of the sequence in which the instructions of a program can be performed. The connections between basic blocks are known in the art as edges. **The DFG maps the connections between where data values are produced and where they are used.**<sup>8</sup>

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<sup>6</sup> see MPEP § 2143.01(V)

<sup>7</sup> see Ghosh, col. 2, lines 17-20

<sup>8</sup> see *id.*, col. 2, lines 24-32; emphasis added

In other words, the Ghosh intermediate representation is fundamentally distinct from the bytecode of Kwong. As discussed in Applicant's remarks filed on 22 July 2009, the intermediate representation can be a data structure which can be optimized during an intermediate compiler operation, which is performed prior to generating the executable binary instructions from the intermediate representation.<sup>9</sup> This data structure can include additional information to reduce the number of indirect calls and indirect references associated with the calls.

Because Kwong nowhere discloses that the bytecode includes additional information, Examiner's proposed modification or combination of the prior art would change the principle of operation of the prior art invention of Kwong. Hence, the rejection of claims 1, 10, 28 and 32 under 35 U.S.C. § 103(a) based on Kwong in view of Ghosh is improper because Examiner has proposed a modification of the Kwong prior art that was nowhere disclosed in Kwong. Applicant, therefore, respectfully requests that withdrawal of the rejection of these claims under 35 U.S.C. § 103(a).

### **CONCLUSION**

It is submitted that the application is presently in form for allowance. Such action is respectfully requested.

Respectfully submitted,

By /Anthony Jones/  
Anthony P. Jones  
Registration No. 59,521

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Anthony Jones  
Park, Vaughan & Fleming LLP  
2820 Fifth Street  
Davis, CA 95618-7759  
Tel: (530) 759-1666  
Email: tony@parklegal.com

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<sup>9</sup> see Applicant's remarks filed on 22 July 2009, pages 13-14